

Natural Gas Technologies

Funding Profile by Subprogram

(dollars in thousands)

	FY 2004 Comparable Appropriation	FY 2005 Comparable Appropriation	FY 2006 Base	FY 2006 Request	FY 2006 Request vs Base	
					\$ Change	% Change
Natural Gas Technologies.....	41,836	44,839	44,839	10,000	-34,839	-77.7%
Total, Natural Gas Technologies.....	41,836	44,839	44,839	10,000	-34,839	-77.7%

Mission

The mission of the Natural Gas Technologies Program has been to develop policies and environmentally friendly technologies that would have stimulated a diverse supply of natural gas, both in North America and around the world, so that the market can function to the benefit of all Americans. Budget discipline necessitated close scrutiny of all Fossil Energy programs, using strict guidelines to determine their effectiveness and compare them to other programs offering more clearly demonstrated and substantial benefits. As a result, the 2006 Budget proposes to conduct orderly termination of the program in FY 2006.

The Program Assessment Rating Tool (PART) was developed by OMB to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. A PART assessment of the Natural Gas R&D program was conducted for the FY 2004 Budget and a reassessment was conducted for the FY 2005 Budget. These programs were rated "Ineffective" in the PART analysis, based primarily on not demonstrating clear results of the research efforts.

Benefits

Improving the ability to supply and deliver needed natural gas to the consumer had economic, national security, and environmental benefits for the country. Economic benefits included (1) savings to consumers, through price reductions that would have accompanied supply expansion, as well as (2) increased profitability to industry through more efficient operations. Environmental benefits would have been realized through more efficient E&P activities and the expanded use of gas to displace less-clean burning fuels in a variety of end-use applications. Increased national security would have been realized through strengthening of the nation's energy supply and further diversification of energy supply sources.

Preliminary benefit modeling was conducted by the Department as part of an integrated program benefits analysis of all the Department's major R&D programs to develop Department-wide program benefits estimates, as part of the effort to conform to the President's Management Agenda. The Department is working to improve consistency across programs in the methodology and assumptions used in estimating program costs and benefits.

Background

DOE's efforts were to expand and diversify the available gas resource base through environmentally-friendly technologies and improved policy options for conventional and unconventional gas supply, methane hydrates, expanded LNG capacity and infrastructure assurance. Although the resource is large, a growing proportion is locked away in complex and deep reservoirs that are not economic to find and produce.

The Natural Gas Technologies program specifically targeted R&D opportunities in existing wells and fields that are operating at the margins of economic viability and unconventional gas resources, most of which exists beyond the margins of current economic feasibility. The program also focused on fundamental, long-term R&D for frontier resources such as Methane Hydrates and ultra-deep gas.

Strategic and Program Goals

The Department's Strategic Plan identified four strategic goals (one each for defense, energy, science, and environmental aspects of the mission) plus seven general goals that tie to the strategic goals. The Natural Gas Technologies program supports the following goal in FY05:

Energy Strategic Goal

General Goal 4: ENERGY SECURITY: Improve energy security by developing technologies that foster a diverse supply of reliable, affordable and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency.

The Natural Gas Technologies program has one program goal, which contributed to General Goal 4 in the "goal cascade".

Program Goal 04.56.00.00: Natural Gas Technologies, Abundant Affordable Gas: The Natural Gas Technologies' goal is to provide technology and policy options capable of ensuring abundant, reliable, and environmentally sound gas supplies.

Contribution to Program Goal 04.56.00.00 Natural Gas Technologies, Abundant Affordable Gas

The Program Goal was to support General Goal 4. In FY 2006, the Natural Gas Technologies program's goal is to conduct orderly termination of this program. The only remaining benefit will be that reflected in the FY 2005 Joule submission to "complete four of the prototype near-term products or field tests in advanced drilling, stripper-well enhancement, and gas storage and define gas hydrate deposits through laboratory analysis." This work will be conducted utilizing FY 2005 and prior year funds.

Annual Performance Results and Targets

FY 2001 Results	FY2002 Results	FY 2003 Results	FY 2004 Results	FY2005 Targets	FY2006 Targets
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Program Goal 04.56.00.00 Natural Gas Technologies, Abundant Affordable Gas

Exploration and Production

Demonstrate safe economic slimhole drilling technology in actual use under Arctic conditions. This technology can significantly reduce cost and environmental impacts. (MET GOAL)

Develop and demonstrate two technologies to detect and quantify areas of high fracture density in currently uneconomic low permeability gas reservoirs. This program has the near-term commercial potential to double average per-well productivity. (MET GOAL)

Complete basin model for the Wind River basin and well site selection in Greater Green River Basin to evaluate integrated remote sensing, seismic surveys and basin structural analysis to differentiate gas-bearing from uneconomic fractured reservoirs, complete a conceptual model of regional water distribution to help operators avoid poor production areas, and build and have field ready an initial prototype of a 400-geophone receiver array to improve seismic resolution necessary to locate economically productive gas zones. (MET GOAL)

Conduct 2 field tests of improved drilling technology that will improve the productivity of gas reservoirs and reduce drilling costs and 2 field tests of technologies to improve natural fracture detection to increase the percentage of economically producing wells of all wells drilled. (MET GOAL)

Conduct laboratory studies and feasibility analyses necessary to justify the next stage of R&D for a drilling vibration monitoring and control system, a novel mud hammer, high-temperature high-pressure cements, gas resources in the Uinta and Anadarko basins, and high-temperature electronics. This is accomplished by completing prototype development and validation testing of data fusion algorithms, a power amplifier, and simulating software for fractured reservoirs prior to field trials.(MET GOAL) (4.56.1)

Complete field tests and analysis of stripper well technologies, a jet assisted drilling system, advanced fracture stimulation designs, natural fracture predictions, and downhole power and communications systems to determine the overall technical and cost efficiency of the technology and the next step(s) to be taken, i.e., commercialization, additional modifications and testing, or termination. (MET GOAL) (4.56.2)

Complete four of the prototype near-term products or field tests from the following critical technology areas: advanced drilling, and stripper-well enhancement, and gas storage.. When these technologies are fully transferred to industry, they will substantially reduce costs or increase efficiency in gas exploration and, production and storage. Benefits will be based on modeling estimates. The prototype projects can be found on the program's website. (4.56.1)

Conduct orderly termination of all activities.

Gas Hydrates

Quantify a hydrate deposit by correlating core samples with geophysical and well log data. (MET GOAL)

Exchange information and coordinate effort between government agencies. Award subprojects under Joint Industry Projects for Gulf of

Hold interagency meetings to exchange hydrate information and coordinate hydrate efforts between government agencies; issue newsletters; and hold

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FY 2001 Results	FY2002 Results	FY 2003 Results	FY 2004 Results	FY2005 Targets	FY2006 Targets
		<p>Mexico seafloor stability and monitoring programs. Issue newsletters, publish available technical reports on the methane hydrate website, and hold 2 workshops to communicate program results to researchers. Conduct annual Federal Advisory Committee meeting. (MET GOAL)</p>	<p>workshops to communicate program results to stakeholders. (MET GOAL) (4.56.3)</p>		
		<p>Complete hydrate modeling for Alaska drilling program. Report strength and thermal property tests at national labs, this is fundamental data needed to model production and seafloor stability of hydrates. Develop prototype Raman Spectroscopy to use lasers to define hydrate molecular structure. (MET GOAL)</p>	<p>Complete laboratory analysis of core samples from the Malik research well and the Hot Ice No. 1 well, thermal property and thermal conductivity measurements, and complete installation of a 12-liter hydrate cell to obtain the necessary data for modeling and characterizing hydrate deposits. (MET GOAL) (4.56.4)</p>	<p>Conduct an ocean expedition to retrieve gas hydrate samples for laboratory analysis. This will increase the understanding of sub-sea resources, which is a prerequisite for development of safe production technologies. (4.56.2)</p>	<p>Conduct orderly termination of all activities.</p>
		<p>Complete initial report of improved hydrate coring device on Ocean Drilling Program, Leg 204. Study of oceanic samples is essential to understanding the distribution and properties of hydrates in nature. Drill 1 test well to determine aerial extent of hydrate occurrence in Alaska. Complete evaluation of hydrate occurrence in Gulf of Mexico to understand the interaction of hydrate and seafloor stability. (MET GOAL)</p>	<p>Complete field tests of hydrate logging and coring operations in the Gulf of Mexico, and drilling and coring Hot Ice No. 1, and analyze results and publish reports on ODP leg 204 and Malik well to advance our understanding of seafloor stability and production potential. (MET GOAL) (4.56.5)</p>		
Infrastructure		<p>Complete laboratory testing and begin field demonstration of an improved remedial technology for storage wells. (MET GOAL)</p>			<p>Conduct orderly termination of all activities.</p>

Comment [GD1]: Not A GPRA goal

FY 2001 Results	FY2002 Results	FY 2003 Results	FY 2004 Results	FY2005 Targets	FY2006 Targets
Effective Environmental Protection		<p>Analyze results of bench-scale reverse osmosis in produced water treatment equipment. Develop kinetics for model compounds to be used in enzymatic and biomimetic catalysts for upgrading heavy crude oils. Construct greenhouse prototype for phytoremediation for methane (natural gas) from coal beds (CBM) water. Collect data on fine particulate matter emission factors. These studies will provide the scientific basis for lower-cost commercial-scale environmental technologies. (MET GOAL)</p>	<p>Ensure that refining and gas production and use are safe for the environment and the public by conducting field tests and data analysis for remediation, produced water treatment, and synthetic mud technologies. Also preparing baseline characterization of impacts of Wyoming and Montana coalbed methane (gas from coal seams) production on groundwater systems and utilizing laser-coupled technology to identify natural gas distribution system leaks. (MET GOAL) (4.56.6)</p>		<p>Conduct orderly termination of all activities.</p>

Means and Strategies

For FY 2006, the strategy will be to conduct orderly termination of the program. Funding in FY 2006 will be used for legal obligations incurred by the termination process.

Validation and Verification

The program was a major supporter of DOE's performance measures tracking system (Joule) and pioneered many of the system's tracking and reporting tools. GPRA reporting requirements were handled through the Joule system, and the program also used the same Joule software to track performance on a number of additional measures covering the full breath of the program's activities (FE Joule) including efforts to track the status of key outreach milestones into Joule. In FY 2004, the program achieved a "Green".

To validate and verify program performance, FE conducts various internal and external reviews and audits. FE's programmatic activities are subject to continuing review by the Congress, the General Accounting Office, the Department's Inspector General. In addition, various Operations/Field Offices commission external independent reviews of site baselines or portions of the baselines. Additionally, FE Headquarters senior management and Field managers conduct quarterly, in-depth reviews of cost, schedule, and scope to ensure projects are on-track and within budget.

Collaboration Activities: The impact of the Domestic Gas Supply program was expanded by: performing R&D activities in partnership with universities, State and local governments, industry, and other stakeholders; using cost-share projects and diverse technology paths to improve chances of success, and to create a direct technology transfer component; seeking synergy of the capabilities of multiple governmental agencies and industry, including the unique capabilities of National Laboratories; collaborating with other agencies to effectively promulgate domestic production technologies; investing jointly with other groups in promising technologies for target resource areas; conducting, with input from National Laboratories, field demonstrations in collaboration with industry, academia, and others; and transferring technologies in cooperation with State and industry organizations.

External Factors Affecting Performance: Access to public land is the single most important factor impacting the supply of domestic natural gas. Additional factors include world oil prices, corporate mergers and acquisitions, availability and cost of capital, and new and evolving environmental legislation and regulation may affect gas program results.

Planned Program Evaluation: The Office of Natural Gas and Petroleum Technology annually performed an internal review of the R&D portfolio as an integral part of annual budget preparation. Projects were evaluated periodically at contractor review conferences and as part of road-mapping workshops to determine R&D gaps. National Energy Technology Laboratory (NETL) individually monitored projects with status and major milestone reporting documented in a NETL project database. NETL in-house R&D projects were peer reviewed by external experts from academia and industry. DOE has recently developed specific metrics to better quantify and value R&D results. In addition, program benefits were estimated using the National Energy Modeling System (NEMS) supported by macroeconomic and detailed industry-specific models. Modeling assumptions and methods were reviewed externally, and the results are compared to results from other programs to determine the best application of R&D resources.

Program Assessment Rating Tool (PART)

Comment [d2]: FY 2006 PART is not addressed and should be documented. Why was it deleted?

PART was developed by OMB to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. A PART assessment of the Natural Gas Technologies program was conducted for the FY 2004 Budget and a reassessment was conducted for the FY 2005 Budget. The program was rated "Ineffective" in the Program Assessment Rating Tool analysis, based primarily on not demonstrating clear results of the research efforts.

The Department has developed preliminary baseline benefit estimates for its applied R&D programs, but needs to improve consistency across programs in the methodology and assumptions used in estimating program costs and benefits.

Funding by General and Program Goal

(dollars in thousands)

	FY 2004	FY 2005	FY 2006
General Goal 4, Energy Security			
Program Goal 04.56.00.00, Natural Gas Technologies, Abundant Affordable Gas			
Exploration and Production.....	21,590	23,666	10,000
Gas Hydrates.....	9,150	9,368	0
Infrastructure.....	8,695	8,354	0
Effective Environmental Protection.....	2,401	3,451	0
Total, General Goal 4 (Natural Gas Technologies).....	41,836	44,839	10,000

Natural Gas Technologies

Funding Schedule by Activity

(dollars in thousands)

	FY 2004	FY 2005	FY 2006	\$ Change	% Change
Natural Gas Technologies					
Exploration and Production	21,590	23,666	10,000	-13,666	-57.7%
Gas Hydrates.....	9,150	9,368	0	-9,368	-100.0%
Infrastructure.....	8,695	8,354	0	-8,354	-100.0%
Effective Environmental Protection.....	2,401	3,451	0	-3,451	-100.0%
Total, Natural Gas Technologies	41,836	44,839	10,000	-34,839	-77.7%

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Detailed Justification

(dollars in thousands)

FY 2004	FY 2005	FY 2006
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Exploration and Production	21,590	23,666	10,000
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The program focused on technology to find and produce gas from non-conventional and deep gas reservoirs with minimal environmental impact. Also included were resource assessments in new basins, advanced diagnostics and imaging, and drilling completion and stimulations.

Conclude Program	0	0	9,900
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In FY 2006, conduct orderly termination of the Natural Gas Technology Program activities in Exploration and Production, Gas Hydrates, Infrastructure, and Effective Environmental Protection. Funding in FY 2006 will be used for legal obligations incurred by the termination process.

Participants: NETL, TBD.

In FY 2005 and FY 2004 no funding was requested.

Advanced Drilling, Completion and Stimulation .	9,501	7,306	0
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In FY 2006, closeout activities included above.

In FY 2005, Deep Trek projects for high temperature electronics, super cement, and advanced MWD will complete prototype development. Research in enhanced telemetry and active drilling vibration dampeners will be completed. Benchmarking of drilling fluids and bits for extreme HT-HP environments will be completed. *Participants include: NETL, APS Technologies, MASI Technologies, Honeywell, Schlumberger, E-Spectrum, Novatek, Mauer, Cementing Solutions, Terra Tek, GTI, TBD*

FY 2004 funding continued development of real-time fracture height growth diagnostic tool, ultra-light weight cement for deep water applications, high-pressured coiled tubing drilling system, mud hammer, long-term, revolutionary technologies such as laser drilling and perforations, technologies for drilling deeper than 16,000 feet including high performance drilling and completion systems, advanced coatings and hardening of "Smart" systems and sensors.

Participants included: NETL, Honeywell, Schlumberger, E-Spectrum, Novatek, Mauer, Tempres, Tech Int., Cementing Solutions, Real-Tme Zone, Terra Tek, GTI, TBD

Advanced Diagnostics and Imaging Systems	3,846	3,777	0
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In FY 2006, closeout activities included above.

In FY 2005, conduct work on projects selected in the Advanced Diagnostics and Imaging area, which investigate improved methods of imaging deep gas targets to improve industries success rate of finding new gas. A geologic play book for the Trenton-play in the Appalachian basin will be completed and work on resource assessments of deep plays in Alabama will be conducted.

Participants include: 3DGeo, Paulsson Geophysical, WVU Research Corp, RSI, Technology Intl., U. Alabama, U. Texas (BEG), TBD.

(dollars in thousands)

FY 2004	FY 2005	FY 2006
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FY 2004 funding continued development of infill drilling optimization in the San Juan basin and Delaware basin of New Mexico, next generation of fracture detection technologies, long-term sustainability of gas supply study in Rocky Mt. basins, improved completion technologies, solutions to high water production problems in tight sand regions, super high resolution seismic tools and shear wave imaging. *Participants included: NETL, ARI, Stanford, LBL, SUNY, SNL, Paulsson Geophysical, University of Texas, Cementing Solutions, N. Mex. Tech.*

- **Multi National Laboratory/ Industry Partnership** 1,922 1,464 0

In FY 2006, closeout activities included above.

In FY 2005, funding will conduct work on projects focused on advanced drilling, and MWD and LWD tools.

FY 2004 funding continued research in 10 projects focused on advanced drilling, completion, and stimulation technologies and advanced diagnostics and imaging technologies.

- **Stripper Well Revitalization** 1,153 1,100 0

In FY 2006, closeout activities included above.

In FY 2005, DOE will conduct work on the National Stripper Well Consortium involving industry and the research community to investigate multiple technologies to improve stripper well production to prevent abandonment. In addition, DOE will support industry-led efforts in technology transfer through workshops and publications focused on the small- to mid-sized independents. *Participants: Penn St. University*

FY 2004 funding continued National, industry-driven consortium to investigate multiple technologies to improve stripper well production. *Participants included: Penn St. Univ.*

- **Technology Transfer** 494 493 0

In FY 2006, closeout activities included above.

In FY 2005, funding will conduct work on industry led efforts in technology transfer. *Participants included: PTTC.*

FY 2004 funding continued industry led efforts in technology transfer. *Participants included: PTTC, Hart Publications.*

- **Deep Trek** 1,481 1,479 0

In FY 2006, closeout activities included above.

In FY 2005, conduct research on developing critical high temperature electronic components and an advanced high temperature MWD system needed by industry to drill and complete deep gas wells. *Participants included: Honeywell, Schlumberger.*

FY 2004 funding continued development of technologies for drilling deeper than 16,000 feet below the earth's surface, including high performance drilling and completion systems, advanced coatings and hardening of "Smart" systems and sensors, low friction, wear resistant coatings/materials. *Participants included: SNL, Honeywell, Schlumberger.*

(dollars in thousands)

FY 2004	FY 2005	FY 2006
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▪ **Liquefied Natural Gas**..... **0** **3,896** **0**

In FY 2006, closeout activities included above.

In FY 2005, DOE will conduct analyses of the economic impact of LNG supplies in the U.S. market and specific safety and security issues related to the delivery of LNG to terminals in the U.S. A federal task force will be established to streamline the LNG terminal approval process. *Participants include: Conversion Gas Imports, GTI/University of Arkansas, New York State Electric and Gas, DOT/OPS, Coast Guard, MMS, FERC TBD*

No funding was requested in FY 2004.

▪ **Arctic Research**..... **2,917** **3,914** **0**

In FY 2006, closeout activities included above.

In FY 2005, conduct work supporting the Arctic Energy Office.

FY 2004 funding supported the Arctic Energy Office and a study concerning the natural gas pipeline.

▪ **Program Support**..... **276** **237** **100**

Fund technical and program management support.

Gas Hydrates **9,150** **9,368** **0**

Gas Hydrates, located in Alaska and the Gulf of Mexico and other offshore locations of the U.S., contain huge resources of natural gas (if only 1% were economically producible, we could triple our resource base). In addition to their potential as a resource, hydrates appear to have implications for the global climate. Significant research is needed to provide the knowledge and technology to understand the fundamental characteristics of hydrates by 2010, and commercially produce gas from hydrates starting in 2015-2020, when more conventional resources decline. Because this research is high risk and long-term, and could potentially lower the value of current reserves, there is little incentive for industry to take the lead in hydrate development

▪ **Gas Hydrates**..... **9,057** **9,274** **0**

In FY 2006, closeout activities included above.

In FY 2005, the program will conduct work on its assessment of gas hydrates to analyze seafloor stability and safety issues and the potential resource in the Gulf of Mexico through an ongoing joint industry project to collect deep stratigraphic cores from hydrate formations as well as continue the development of instrumented arrays for future deployment in the GoM. Characterization well sites will be prioritized in Alaska to assess the hydrate resource. Scientists at NETL and other national labs will conduct work on hydrate characterization. *Participants include: Chevron Texaco, U. Mississippi, BP, U. Alaska, USGS, MMS, NOAA, NSF, NETL, National Labs.*

In FY 2004 the program will support one ongoing joint industry project needed to drill initial coring wells in the Gulf of Mexico in order to assess the potential resource in the Gulf of Mexico. In addition, one Alaska hydrate project funded in FY 2003 will be continued to assess the extent of gas resources locked in hydrate formations in Alaska. Main emphasis will be on taking stratigraphically

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(dollars in thousands)

FY 2004	FY 2005	FY 2006
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deep cores from hydrate formations in the Gulf of Mexico. *Participants include: TBD, Chevron Texaco*

▪ **Program Support** 93 94 0

Fund technical and program management support.

Infrastructure 8,695 8,354 0

This program developed technology to ensure the operational reliability and integrity of transmission and utility distribution pipeline systems. The research was focused on five categories: inspection technologies, remote sensing, materials development, operational technologies, and storage. Benefits of the program were expected to be reduced greenhouse methane emissions, increased pipeline capacity, improved pipeline assessment techniques, more efficient pipeline operations, and increased safety and security.

▪ **Storage Technology** 1,908 1,185 0

In FY 2006, closeout activities included above.

In FY 2005, DOE will conduct work on an industry-led consortium in gas storage and conduct work on developing an advanced method for developing cavernous storage in carbonate formations. *Participants: Penn State University and Clemson University.*

FY 2004 funding was used to continue development of an energy meter, to establish an industry driven underground gas storage consortium, initiate bedded salt and electronic flow meter data modeling efforts, and initiate field testing of critical components of a novel LNG process. *Participants included SwRI, Terralog, Schlumberger, Conversion Gas Imports, Furness-Newbruge, Penn State University.*

▪ **Delivery Reliability** 6,649 7,085 0

In FY 2006, closeout activities included above.

In FY 2005, conduct research on ensuring the reliability and integrity of the gas transmission and distribution network, developing smart automated inside pipeline inspection sensor systems, obstacle detection systems for horizontal boring applications for laying distribution pipelines, developing systems capable of detecting external force damage, developing technology to improve the efficiency for reciprocating and turbo compressors, and developing advance technology capable of determining pipeline wall integrity. *Participants included SwRI, Tuboscope, NYGAS, GTI, Battelle, CSU, ARC, ANL, INEEL, LLNL, SNL, ORNL, PNNL, NETL.*

In FY 2004, continue research directed to ensure the reliability and integrity of the gas transmission and distribution network, develop smart automated inside pipeline inspection sensor systems, conduct research on obstacle detection systems for horizontal boring applications for laying distribution pipelines, develop systems capable of detecting external force damage, develop technology to improve the efficiency for reciprocating and turbo compressors, and develop advance technology capable of determining pipeline wall integrity. *Participants included SwRI, Tuboscope, NYGAS, GTI, Battelle, CSU, ARC, ANL, INEEL, LLNL, SNL, ORNL, PNNL, NETL.*

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(dollars in thousands)

	FY 2004	FY 2005	FY 2006
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▪ **Program Support** **138** **84** **0**
Fund technical and program management support.

Effective Environmental Protection **2,401** **3,451** **0**

This program sought to reduce the environmental impacts of gas operations and reduce the cost of environmental compliance through a combination of technology development, risk assessment, and regulatory streamlining. The program emphasized research that would improve access to onshore public lands.

▪ **Environmental Science** **2,376** **3,416** **0**
In FY 2006, closeout activities included above.

In FY 2005 and FY 2004, conduct work on targeted initiatives to define and solve specific problems in key focus areas, specifically: 1) environmental barriers to coal bed methane production, and 2) air quality issues affecting natural gas production. Develop objective, credible data for regulatory decisions as part of a program-wide environmental strategy for maintaining sustainable supplies of natural gas. *Participants include: NETL, National Labs, TBD.*

▪ **Program Support** **25** **35** **0**
Fund technical and program management support.

Total, Natural Gas Technologies **41,836** **44,839** **10,000**

Explanation of Funding Changes

FY 2006 vs. FY 2005 (\$000)

Exploration and Production

• Budget discipline necessitated close scrutiny of all Fossil Energy programs, using strict guidelines to determine their effectiveness and compare them to other programs offering more clearly demonstrated and substantial benefits. As a result, the 2006 Budget proposes to conduct orderly termination of the program in FY 2006..... -34,839

Total Funding Change, Natural Gas Technologies..... **-\$34,839**